



**FLORENCE COPPER INC.**  
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May 13, 2014

Ms. Nancy Rumrill  
U.S. Environmental Protection Agency  
Region 9, Ground Water Office, WTR-9  
75 Hawthorne Street  
San Francisco, California 94105-3901

**Re: Response to Request for Information dated March 13, 2014  
Class III Underground Injection Control (UIC) Well Permit Application  
Curis Resources (Arizona) Inc.**

Dear Ms. Rumrill:

Florence Copper, Inc. (Florence Copper) is pleased to submit the following in response to Mr. David Albright's March 13, 2014 letter to Mr. Michael McPhie and to the Requests for Information (RFIs) included as an attachment to Mr. Albright's letter. Florence Copper's responses to each of the comments identified in the RFI are provided below. Each RFI is listed in italics and is followed by our response.

We believe the following is responsive to the RFI and we are available to answer any questions you might have.

Thank you for your assistance.

Sincerely,  
Florence Copper Inc.

A handwritten signature in purple ink, appearing to read "Daniel Johnson", is written over a horizontal line.

Daniel Johnson  
Vice President - General Manager

cc: Richard Mendolia, Arizona Department of Environmental Quality  
David Albright, U.S. Environmental Protection Agency

***Attachment A, Area of Review***

***Comment 1***

*FC's response to Comment 2 in the September 10, 2012 response to EPA comments includes a reference to Attachment 14A of the Temporary Aquifer Protection Permit (APP) application dated March 1, 2012. Attachment 14A discusses the Hydrologic Study and the groundwater flow model in much greater detail than provided in the updated UIC Permit application and previous responses to comments. Please include the relevant discussion, figures, tables, and exhibits from Attachment 14A in Attachment A, or provide that information as an appendix to Attachment A in the UIC Permit application. In addition, please add Attachments 14B and 14C related to the Hydrologic Study to the application either in the body of Attachment A or as Appendices to the application to provide relevant background information related to the groundwater flow model. Please also provide a discussion of the basis for the groundwater flow model in Attachment A of the UIC Permit application referencing Attachments 14A, 14B, and 14C and where the Attachments are located in the application.*

*Please include the most recent electronic files on CDs for the groundwater flow model in the application.*

Response to Comment 1

The requested information has been added to Section A.1 of Attachment A (Area of Review) of the Updated Underground Injection Control (UIC) Permit Application. The requested Aquifer Protection Permit (APP) Application Attachments 14A, 14B, and 14C and the supporting electronic groundwater model files have been added as Exhibits A-1, A-2, A-3, and A-4, respectively, to Attachment A of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

***Attachment B, Map of Area and Area of Review***

***Comment 2***

*Maps submitted in Attachment B of the March 2011 UIC Permit application were replaced by three maps included in Appendix 6, Revised Maps of the July 2, 2013 Curis response to the RFI dated June 12, 2013. Please include those three maps in Attachment B of the UIC Permit application.*

Response to Comment 2

The requested maps have been added as Exhibit B-1 to Attachment B of the Updated UIC Permit Application and the text has been revised (Section B.1) to reflect the inclusion of the new materials. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

***Attachment C, Corrective Action Plan***

***Comment 3***

*Please include Figure Temp APP RTC (E) 18-1, from Attachment 3 of the May 23, 2012 response to the Arizona Department of Environmental Quality (ADEQ)'s May 2, 2012 request for information (RFI) in this Attachment C or in Attachment B. It is a map that provides a focused view of all wells and coreholes to be abandoned within the PTF well field and within 500 feet of any well in the well field. Please also include the original corehole and well construction records provided in the September 2012 response to an EPA request for information in Attachment C or referenced as an appendix in the UIC Permit application.*

Response to Comment 3

The requested Figure, Temp APP RTC (E) 18-1, has been added as part of Exhibit B-1 to Attachment B of the Updated UIC Permit Application. The content of the Figure is also provided on Figure A-9 of this Application; however, the Figure was added to Attachment B for the reviewer's convenience. The original core hole and well construction records have been included as Exhibit C-1 of Attachment C of the Updated UIC Permit Application and the text has been revised to reflect the addition of the new Exhibit. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

***Attachment D, Maps and Cross Sections of USDWs***

***Comment 4***

*Figures D-1 through D-8, included in the March 2011 UIC application, are missing in the updated UIC Permit application. Please update those figures and include them in the UIC Permit application. Comparable figures in Attachments 14A (Figures 14A-8 and 14A-9) and 14C (Figures 14C- 48 to 14C-52) were updated in the March 2012 Temporary APP Application. Please modify the limits of the USDWs depicted in Figures D-2 and D-3 to be consistent with the existing lateral aquifer exemption boundary.*

Response to Comment 4

The cross sections provided in the March 2011 UIC permit application were replaced with those provided in the December 2013 submittal due to the change in scale of the application from the commercial size area to the smaller Production Test Facility (PTF) area. The cross sections provided in December 2012 included additional detail specific to the PTF well field area, while the earlier cross sections did not transect the PTF well field. The cross section location maps and site scale cross sections provided in the March 2011 UIC permit application have been updated and added to Attachment D of the Updated UIC Permit Application as Figures D-1 through D-9.

A PTF-specific cross section location map and cross sections submitted in December 2013 are also included in Attachment D of the Updated UIC Permit Application as Figures D-10 through D-12.

All cross sections provided in Attachment D have been revised to depict the existing lateral aquifer exemption boundary. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

***Attachment F, Maps and Cross Sections of Geologic Lithology***

***Comment 5***

*The maps and cross sections submitted with the March 2011 UIC application, Figures F-2 through F-9, and modified in the March 2012 Temporary APP application are missing in the updated UIC Permit application. See Attachments 14A (Figures 14A-8 and 14A-9) and 14C (Figures 14C- 48 to 14C-52) in the APP application. Please include those modified figures in the UIC Permit application.*

Response to Comment 5

The cross sections provided in the March 2011 UIC permit application were replaced with those provided in the December 2013 submittal due to the change in scale of the application from the commercial size area to the smaller PTF area. The cross sections provided in December 2012 included

additional detail specific to the PTF well field area, while the earlier cross sections did not transect the PTF well field. The cross section location maps and site scale cross sections provided in the March 2011 UIC permit application have been updated and added to Attachment F of the Updated UIC Permit Application as Figures F-2 through F-10.

A PTF-specific cross section location map and cross sections submitted in December 2013 are also included Attachment F of the Updated UIC Permit Application as Figures F-11 through F-13.

A complete Updated UIC Permit Application is included as Appendix 1 of this response.

#### ***Attachment H, Operating Data***

##### ***Comment 6***

*The July 2, 2013 FC response letter states that Attachment H was not modified by the June 1, 2012 letter from FC, or by subsequent submittals. However, the June 1, 2012 letter states that the geochemical modeling report was revised to reflect no stacking and reduced operating and restoration times for the PTF, which is inconsistent with the July 2, 2013 response and the discussion at Section H.6.4 in the December 2013 UIC application. Please clarify.*

*In addition, the February 22, 2012 version of the Geochemical Evaluation of Forecast Process Solutions at Florence Copper Project Report in Exhibit H-1 of the updated UIC application excludes a representative composition of the pre-stacked solution in Table 3.1. The discussion in Section H.6.4 of the updated UIC Permit application refers to the forecast composition of pre-stacked Pregnant Leach Solution (PLS) Solution No. 3 of Table 3.1 of Exhibit H-1, but that column is missing from Table 3.1. Please clarify that statement and modify Attachment H appropriately.*

##### **Response to Comment 6**

Clarifying text has been added to Sections H.6, and H.6.4 of Attachment H. Text was also corrected in Section H.6.5 of Attachment H to clarify that no solution stacking is planned during PTF operations.

Solution stacking refers to the practice of staging and re-injecting intermediate grade solutions to manage overall PLS grade during commercial copper recovery. No solution stacking is proposed for PTF operations. At PTF startup, recovered solution will be re-acidified and re-injected until copper concentrations reach a level sufficient to achieve solvent extraction/electrowinning (SX/EW) copper recovery. Once SX/EW operations begin, solutions will only be re-injected following SX/EW copper recovery. Consequently, no pre-stacked solution composition is included in Table 3.1 of Exhibit H-1.

A revised Attachment H is included with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

#### ***Attachment I, Formation Testing Program***

##### ***Comment 7***

*Please add that the PTF operator will perform aquifer pump tests prior to injection in order to evaluate subsurface characteristics of the Oxide Bedrock Unit, overlying basin fill units, and the confining Middle Fine Grained Unit within the PTF Area of Review (AOR), as stated in the revised PTF Operations Plan in Exhibit K-2 in Attachment K of the integrated UIC Permit application.*

Response to Comment 7

The requested text was added to Exhibit K-2 of Attachment K of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

**Comment 8**

*The 1996 BHP Site Characterization Report and Fracture Gradient Packer Testing Data are provided as Exhibits I-1 and I-2, respectively on CDs within Attachment I in the updated application. Please provide paper copies, in addition to the CDs, as an appendix to the application and reference the appendix in the text of this Attachment.*

Response to Comment 8

Paper copies of Exhibits I-1 and I-2 of Attachment I are included in the complete Updated UIC Permit Application provided as Appendix 1 of this response.

**Attachment K, Injection Procedures**

**Comment 9**

*The five bulleted items listed in Section K.3.4.2 on page 5 are incomplete and inconsistent with the eight items listed on page 3 of the Operations Plan under Injection Monitoring and Controls. Pressure transducers are included at the injection wellhead, annulus, and injection zone in the Operations Plan but are omitted from the discussion on page 5 of Attachment K. Please clarify and/or correct those omissions on page 5.*

Response to Comment 9

The list of bulleted items shown in Section K.3.4.2 has been revised to be consistent with the eight items listed on page three of the Operations Plan under Section K.3.4.2, Injection Monitoring and Controls. The requested discussion regarding pressure transducer monitoring has been added to Section K.3.4.2 of Attachment K of the Updated UIC Permit Application.

A complete Updated UIC Permit Application is included as Appendix 1 of this response.

**Comment 10**

*Please modify the second sentence in the last paragraph on page 2 of the Operations Plan to read as follows: Test results will be reported to the Arizona Department of Environmental Quality (ADEQ) in accordance with Aquifer Protection Permit (APP) requirements "and to USEPA in accordance with UIC permit conditions".*

Response to Comment 10

The requested change was made to the last paragraph of page 2 of the Operations Plan provided as Exhibit K-2 of Attachment K of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

**Comment 11**

*Please add to the Operations Plan, Table 1 a transducer to the Injection System, Injection Well Head line to measure annular pressure above the packer with columns to describe conditions, possible cause, response, and follow-up action.*

Response to Comment 11

Table 1 of the Operations Plan has been revised to include a transducer in the Injection System, Injection Well Head Line for the purpose of monitoring annular pressure above the packer. Columns have been added to the table to describe conditions, possible cause, with response and follow up actions. The Operations Plan is provided as Exhibit K-2 of Attachment K of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

**Comment 12**

*Exhibit A presents Table 3.1, Estimated Composition of PTF ISCR Process Solutions, but omits a representative composition of the pre-stacked solution as discussed above in the comments about Attachment H. Please clarify the discussion in Section H.6.4 of the updated UIC Permit application and modify Table 3.1 if pre-stacking will occur in PTF operations as discussed in Attachment H.*

Response to Comment 12

As described in response to Comment 6 above, no solution stacking is proposed for PTF operations. Clarifying text has been added to Sections H.6 and H.6.4 of Attachment H. Text was also corrected in Section H.6.5 of Attachment H to clarify that no solution stacking is planned during PTF operations.

A revised Attachment H is included with the A complete Updated UIC Permit Application provided as Appendix 1 of this response.

**Attachment L, Well Construction Procedures**

**Comment 13**

*The first sentence in the third paragraph in the Introduction states that Attachment L describes procedures that will be used to construct the proposed Class III injection and recovery wells. Please clarify that statement because the discussion in Section L.2.5 on page 4 includes a description of cementing characteristics for observation and multi-level sampling wells and for "all wells." In addition, discussion of the well construction procedures for the seven supplemental monitoring wells is missing from the updated UIC Permit application. Please add this discussion to Attachment L, including plans to conduct open-hole and cased hole geophysical logs and identify the proposed screened intervals in each well.*

Response to Comment 13

Attachment L has been revised to add clarifying language to Sections L.1, L.2.2, L.2.5.2, L.2.5.3, and L.2.6 to indicate cementing characteristics of, and geophysical logs to be run in open boreholes and cased boreholes for each of the proposed well types. The clarifying text also indicates that the seven supplemental monitoring wells will be constructed in accordance with Class III well regulations. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

***Attachment M, Well Construction Details***

***Comment 14***

*Discussion and schematics of the construction details of the seven supplemental monitoring wells are omitted from the updated UIC Permit application. Please add this discussion and the schematics to Attachment M. Please include Figures 18-2 and 18-3 in the September 10, 2012 response to the July 20, 2012 RFI and the well design figures presented in Attachments 4 (Fig. 11-2) and 5 (Figs. 12-1 through 12-4) of the December 14, 2012 FC response to the November 8, 2012 RFI. Also, please add Figure 11-1, Monitor Wells Locations, from the Attachment 4 to Attachment P of the UIC Permit application.*

Response to Comment 14

Well design details submitted previously for the seven supplemental monitoring wells (M55-UBF, M56-LBF, M57-O, M58-O, M59-O, M60-O, and M61-LBF) described those wells as non-Class III wells. In response to comments 13 and 14 of this RFI, design of the seven supplemental monitoring wells has been revised to reflect Class III well construction.

Discussion (Section M.2) and schematics (Figure M-5) describing the supplemental monitoring wells have been added to Attachment M of the Updated UIC Permit Application. As requested, revised Figures 18-2, 18-3, 11-2, 12-1 through 12-4 have been added as Exhibit M-1 to Attachment M. Figure 11-1 has also been added as part of Exhibit P-2 of Attachment P of the Updated UIC Permit Application.

Revised Attachments M and P are included with the complete Updated UIC Permit Application provided as Appendix 1 of this response

***Comment 15***

*Appendix D of the September 10, 2012 response to the July 20, 2012 RFI titled "Temporary APP Attachment 9 - Design Documents" was provided on a CD, but is missing in the updated UIC Permit application. Please include the paper copy of Exhibit 9A in Attachment 9 of the Temporary APP application (for the Design Documents Pertaining to PTF Well Field) and include the CD as an appendix to the UIC Permit application.*

Response to Comment 15

A paper and an electronic version (provided on CD) of "Temporary APP Attachment 9 Design Documents" have been added as Exhibit M-2 of Attachment M of the Updated UIC Permit Application. It should be noted that submittal of the Temporary APP application resulted in the Arizona Department of Environmental Quality (ADEQ) issuing Temporary APP No. 106360 to Florence Copper for operation of the PTF. Requests made by USEPA embodied in this RFI, and other RFIs made subsequent to the issuing of Temporary APP No. 106360, have resulted in minor modifications to the information and design details reflected in Exhibit 9-A of Attachment 9 of the Temporary APP application. The Temporary APP application has not been modified subsequent to issuance of Temporary APP No. 106360. ADEQ has been copied on all documents transmitted to USEPA in response to requested changes. In addition, Section 2.2.3(b) of Temporary APP No. 106360 requires Florence Copper to drill, case, and cement all Class III wells in accordance with the UIC Permit, and to meet the mechanical integrity testing requirements of the UIC Permit.

Temporary APP No. 106360 was granted on September 28, 2012, and was amended on July 5, 2013. Changes to the Drawings included in Attachment M were requested in USEPA RFIs dated June 12, 2013 and March 13, 2014. USEPA's requested changes to the information and design details included in Attachment M Drawings after Temporary APP No. 106360 had been granted and the permit application closed are not reflected in Exhibit 9-A of Attachment 9 of the Temporary APP application. As a result of these changes, design documents pertaining to the PTF well field that were included in Exhibit 9-A of Attachment 9 of Temporary APP application are provided here as submitted to ADEQ on March 2, 2012 and should be used for reference only. Current well design details are reflected in Attachment M of the Updated UIC Permit Application, provided as Appendix 1 of this response.

***Attachment N, Changes in Injected Fluid***

***Comment 16***

*At N.3, Changes in Pressure of Injected Fluid, .3.1, Groundwater Flow Model, a discussion similar to that provided in the last three paragraphs on page 4 of the March 2011 UIC application is omitted from the updated UIC Permit application. Please add a discussion of the predicted hydrostatic pressure effects and head differentials indicated from the latest model results. Also, please add to this section the relevant discussion in the responses to EPA comments in the September 2012 and December 2012 RC submittals, especially the discussion of possible preferential flow and the effects of the fault zones on hydraulic control discussed in response to Comment 7 in the December 2012 response.*

**Response to Comment 16**

The requested text has been added to Sections N.3.1 and N.4 of Attachment N of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

***Comment 17***

*At N.4, Native Fluid Displacement, Figures N-1 and N-2 display the PTF well field as it was displayed in the September 2012 FC response to EPA comments rather than the modified version in Figures 9-1 and 9-2 in the December 2012 FC response to EPA comments. For clarity and consistency with the reasons for the modification, please display the figures of the PTF well field as in the December 2012 submittal. In addition, the well field is described as 200 by 200 feet in size, but the scale of the map of the well field indicates the size as approximately 300 by 300 feet. If the map scale is correct, please correct the descriptions of the well field size where it is described as 200 by 200 feet in the text of the UIC Permit application.*

**Response to Comment 17**

Figures N-1 and N-2 have been removed and have been replaced by Figures 9-1 and 9-2 as provided in the December 2012 response to the RFI dated November 8, 2012. In addition the map scale has been corrected to reflect the correct size of the well field which is 200 by 200 feet. Figures 9-1 and 9-2 are included with the revised Attachment N provided with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

**Comment 18**

*Please include a hard copy in the appendix to the UIC Permit application of the electronic groundwater flow model data and output files that produced the results discussed in Attachments A and N (also see the comments on Attachment A above).*

**Response to Comment 18**

The groundwater flow model prepared in support of the Updated UIC Permit Application features more than two million model cells distributed over ten model layers. Printing hard copies of the model input and output files will result in multiple tables with more than two million cells each. In hard copy format, the values represented on paper will be of little utility to reviewers. Consequently, the requested model input and output files are provided in electronic format as Exhibit A-4 of Attachment A of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

**Attachment O, Plans for Well Failures (Contingency Plan)**

**Comment 19**

*Please include Contingency plans and mechanical integrity requirements for the seven supplemental monitoring wells in the discussion in Attachment O. All are located within the AOR and are subject to UIC well construction and plugging and abandonment requirements. Annular conductivity devices (ACD) are not included in the monitoring well design schematics, and pressure testing of the casing and logging programs for the monitoring wells are omitted from the mechanical integrity demonstration discussion. The observation wells and multi-level sampling wells located within the PTF well field are included in the discussion of those requirements. The discussion in the Introduction on page 2 excludes the multi-level sampling wells from mechanical integrity requirements, but states that ACDs will be placed in those wells in Section O.3.1 on page 4, which is applicable to a mechanical integrity demonstration. The discussion on page 6 refers to running cement bond logs and ACD monitoring in wells with polyvinyl chloride (PVC) or fiber-reinforced plastic (FRP) casing, which includes observation and multi-level sampling wells. Please clarify and correct the inconsistency in those statements. A similar discussion of requirements would apply to the seven supplemental monitoring wells.*

**Response to Comment 19**

Well design details submitted previously for the seven supplemental monitoring wells (M55-UBF, M56-LBF, M57-O, M58-O, M59-O, M60-O, and M61-LBF) described those wells as non-Class III wells. In response to Comments 13 and 14 of this RFI, the design of the seven supplemental monitoring wells has been revised to reflect Class III well construction requirements.

Sections O.1, O.3.1, and O.3.1.1 have been revised to indicate that the supplemental monitoring wells will be Class III wells and are subject to mechanical integrity requirements. Clarifying text has also been added to indicate that the multi-level sampling wells will also be Class III wells and are subject to mechanical integrity requirements.

A revised Attachment O is included with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

***Attachment P, Monitoring Program***

***Comment 20***

*At P.5.1 Groundwater Quality Monitoring, the monitoring for Alert Levels (ALs) and Aquifer Quality Limits (AQLs) for certain parameters listed in Tables P-3 and P-4 have been changed from those listed in the 2011 UIC Permit application. For example, the AL for fluoride in Table P-3 and Table P-4 was increased from 1.2 or 1.3 to 3.2 mg/L in the existing point of compliance (POC) wells. Please discuss the basis for those changes.*

Response to Comment 20

The ALs and AQLs shown in Tables P-3 and P-4 are site-specific ALs and AQLs established by ADEQ and embodied in Temporary APP No. 106360 issued on September 28, 2012 and amended on July 5, 2013. These ALs and AQLs were set by ADEQ in accordance with their current methodology for establishing ALs and AQLs, which requires that if analytical results for more than 50% of the samples for a specific parameter are non-detect, then the AL will be set at 80% of the Arizona Water Quality Standard (AWQS). The ALs and AQLs are listed in Tables 4.1-6 and 4.1-7 of Temporary APP No. 106360 and the method by which the ALs and AQLs are to be established is described in Section 2.5.3.2.1 of that permit. Temporary APP No. 106360 is included as Exhibit Q-1 of Attachment Q the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

***Comment 21***

*Please add Attachment 2, labeled Revised Figure 11-1, Monitor Well Location (Revised), Proposed Test Facility, listed under Item 10 of the March 11, 2013 response to the RFI dated February 27, 2013, to Attachment P of the updated UIC Permit application.*

Response to Comment 21

Figure 11-1, a map showing the location of the proposed supplemental monitoring wells has been added to Exhibit P-2 of the revised Attachment P of the Updated UIC Permit Application. A revised Attachment P is included with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

***Comment 22***

*Please add Attachment 3, labeled Revised Figure 11-2. Supplemental Monitoring Well M61-1-LBF Design listed under Item 10 of the March 11, 2013 response to the RFI dated February 27, 2013, to Attachment P of the updated UIC Permit application.*

Response to Comment 22

Figure 11-2, a schematic diagram depicting the design of supplemental monitoring well M61-LBF, has been added to Exhibit P-2 of the revised Attachment P of the Updated UIC Permit Application. A revised Attachment P is included with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

**Comment 23**

*Please add Attachment 5 of the December 14, 2012 response to RFI dated November 8, 2012, listed under Item 9 of the March 11, 2013 response to the RFI dated February 27, 2013, to Attachment P of the updated UIC application. Attachment 5 includes Figures 12-1 through 12-4, which are labeled as Supplemental Monitoring Well Design for wells M57-O through M60-O.*

Response to Comment 23

Figures 12-1 through 12-4, schematic diagrams depicting the design of supplemental monitoring wells M57-O, M58-O, M59-O, and M60-O, have been added to Exhibit P-2 of the revised Attachment P of the Updated UIC Permit Application. A revised Attachment P is included with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

**Attachment Q, Plugging and Abandonment Plan**

**Comment 24**

*Please include the Plugging and Abandonment Plans (EPA Forms 7520-14) and schematic diagrams of coreholes and wells located within the AOR provided in Appendix G of the September 10, 2012 FC response to EPA comments in the July 20, 2012 RFI.*

Response to Comment 24

The Plugging and Abandonment Plans (EPA Forms 7520-14) and schematic diagrams of core holes and wells located within the AOR provided in Appendix G of the September 10, 2012 response to EPA comments in the July 20, 2012 RFI have been included as Exhibit Q-2 of the revised Attachment Q of the Updated UIC Permit Application. A revised Attachment Q is included with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

**Comment 25**

*Please include a Closure and Post-Closure Plan in the UIC Permit application. There is little discussion of aquifer restoration plans and post-closure monitoring activities within the UIC Permit application. Please submit a Closure and Post-Closure Plan similar to the Plan provided in Appendix F of the 1997 UIC Permit but adapted to apply to closure of the PTF operation. Please include the discussion in Attachment 16 of the Temporary APP Application that relates to UIC closure and post-closure operations in the Closure and Post-Closure Plan.*

Response to Comment 25

ADEQ has granted Temporary APP No. 106360 to Florence Copper Inc. for the operation, closure, and post-closure monitoring of the PTF. The closure and post-closure language included in Temporary APP No. 106360 conforms with and governs proposed closure and post-closure plans previously submitted to ADEQ in conjunction with the application for Temporary APP No. 106360. The current closure and post-closure requirements are described in Sections 2.9 and 2.10 of Temporary APP No. 106360. For the reviewers' convenience, a copy of Temporary APP No. 106360 is provided as Exhibit Q-1 of the revised Attachment Q of the Updated UIC Permit Application.

As requested, a closure and post-closure plan is included as Exhibit Q-2 of the revised Attachment Q of the Updated UIC Permit Application. A complete Updated UIC Permit Application is provided as Appendix 1 of this response.

***Attachment R, Necessary Resources***

***Comment 26***

*Appendix H, Revised Temporary APP Table 5.2, PTF Closure and Post-Closure Cost Estimates, provided in the September 10, 2012 FC response to the July 20, 2012 RFI, is omitted from the December 2013 UIC Permit application. The total cost estimate of \$5,359,951, including surface closure and post-closure costs, is presented on page 5 of Table 5.2. Exhibit R-1 in the updated UIC Permit application presents only the cost estimate for the closure of the PTF process solution impoundment and pipeline channel provided by Knight Piesold Consulting, dated March 2, 2012, which amounts to a total of \$422,140. The total estimated cost of closure and post-closure operations attributable to the 24 PTF wells, 33 POC wells, 21 BHP test wells, and three monitoring wells is \$4,064,129, based on the figures in Table 5.2 of the September 10, 2012 FC response. That number does not include the closure costs for five supplemental monitoring wells added after that date, which would amount to an estimated additional \$56,250. The base dollar amount to meet UIC financial assurance requirements is approximately \$4,120,379 on that basis. EPA would also consider additional contingency costs to that amount.*

*The surety bond (number 1080127) in Exhibit R-2, Demonstration of Financial Capability, issued for the ADEQ Temporary Aquifer Protection Permit, provides a total surety amount of \$3,487,076, which is far less than the total cost estimate of \$5,359,951 listed in the September 2012 response to the July 20, 2012 RFI. The surety amount is also less than the total cost estimate of \$3,948,458 presented in Table 5-2 in Attachment 5 of the March 2012 Temporary APP application, which is referenced in Attachment R of the updated UIC Permit application.*

*Please add Appendix H to Attachment R of the UIC Permit application and clarify and correct the large discrepancy between the most recent total cost estimate of \$5,359,951 and the surety amount. In addition, please update the amount to account for inflation.*

**Response to Comment 26**

Table 5.2 of the revised Temporary APP application provided in the September 10, 2012 FC response to the July 20, 2012 RFI was subsequently revised again prior to issuance of Temporary APP No. 106360 on September 28, 2012. Table 5.2 was revised to reflect changes in the proposed project relating to both historical and commercial facilities that will neither be operated nor abandoned in conjunction with PTF operations.

The revised version of Temporary APP application Table 5.2 reflects a closure cost of \$3,503,819. The revised version of Temporary APP application Table 5.2, dated September 21, 2012, is sealed by an Arizona registered professional engineer, and is provided as Exhibit R-1 of revised Attachment R of the Updated UIC Permit Application. The revised closure and post-closure costs reflected in Exhibit R-1 are those provided to ADEQ in support of the Temporary APP No. 106360, issued on September 28, 2012.

The Financial Assurance instrument included in Exhibit R-2 reflects the closure cost bond required by ADEQ as specified in Temporary APP No. 106360, Section 2.1, under the heading of Financial Capability. As required by Temporary APP No. 106360, this instrument has been issued in the amount of \$3,487,743.

The differences between cost estimate (dated and sealed September 4, 2012) provided with the September 10, 2012 response to the RFI dated July 10, 2012, and the revised costs submitted to ADEQ dated and sealed September 21, 2012 are the result of elimination of existing BHP facilities and infrastructure from the PTF closure costs and other minor changes. The existing BHP facilities and infrastructure were removed from the September 21, 2012 cost estimate because those facilities will not be abandoned and closed as part of the PTF operations authorized under Temporary APP No. 106360. The total cost difference between the September 4, 2012 and September 21, 2012 closure and post-closure cost estimates is \$1,856,132.

Florence Copper understands that USEPA will require the supplemental monitoring wells to be added to the closure and post-closure cost estimates, and will further require that the revised total be adjusted for inflation to 2014 dollars. Florence Copper has prepared a revised closure and post closure cost estimate that reflects these changes. The revised cost estimate is dated and sealed April 3, 2014 and reflects a total cost of \$4,033,791. The revised closure cost is included in Appendix 2 of this response. Florence Copper understands that USEPA will require supplemental financial assurance to cover the costs reflected in Appendix 2 and possibly further contingencies estimated by USEPA.

***Comment 27***

*Please also add the discussion in the Explanation of Cost Estimates in Attachment 5 in the March 2012 Temporary APP Application that relates to the cost estimates for UIC closure and post-closure operations to Attachment R in the UIC Permit application.*

Response to Comment 27

The requested information has been added to Sections R.1.1.1 through R.1.1.3 of the revised Attachment R of the Updated UIC Permit Application. The information provided includes a description of the basis for the cost estimate included as Exhibit R-1 of Attachment R. The cost description included in Sections R.1.1.1 through R.1.1.3 of Attachment R and the cost estimate values provided in Exhibit R-1 reflect the information and values provided in support of the APP application to ADEQ which resulted in the granting of Temporary APP No. 106360. The cost estimate provided in Exhibit R-1 reflects the current bonding associated with Temporary APP No. 106360. A complete revised version of Attachment R is included with the complete Updated UIC Permit Application provided as Appendix 1 of this response.

***Attachment S, Aquifer Exemption***

***Comment 28***

*The original aquifer exemption boundaries, as approved in May 1997 for the proposed Florence Copper ISCR project, remain unchanged for the PTF operation. However, the 500-foot AOR that circumscribes the PTF well field defines the area in which contaminants must be contained over the sever-year life of the PTF. Please revise the discussion in Attachment S and modify Figures S-1 and S-2 to remove the 500-foot circular boundary depicting the "proposed aquifer exemption area." Please add the PTF well field to Figure S-2. Please modify the limits of USDWs depicted in Figures D-2 and D-3 in Attachment D of the UIC Permit application to be consistent with the existing lateral aquifer exemption boundary, as approved in May 1997.*

Response to Comment 28

Figures S-1 and S-2 of Attachment S, and cross sections included in Attachment D of the Updated UIC Permit Application have been revised to reflect the aquifer exemption boundaries approved in May 1997, which remain unchanged for the PTF project. Revised versions of Figures S-1, S-2, and Attachment D cross sections are included with the revised Attachments D and S provided with the complete Updated UIC Permit Application submitted as Appendix 1 of this response.

**Comment 29**

*Figure S-2 depicts the vertical extent of the aquifer exemption boundary. In addition, Figure S-2 shows the Oxide Zone in contact with the Middle Fine Grained Unit base within the exempted zone underlying the PTF AOR in the vertical view looking north, while that is not the case in Figures D-2 and D-3. The applicant should modify Figure S-2 accordingly.*

Response to Comment 29

A revised version of Figure S-2 is included in the revised Attachment S of the Updated UIC Permit Application, which is provided as Appendix 1 of this response.

**Comment 30**

*Please include a copy of the report on CD in an Appendix to the UIC Permit application entitled "NI 43-101 Florence Copper Project, Technical Report, Pre-Feasibility Study" as referenced in Section S.3.*

Response to Comment 30

An electronic copy of the report titled *NI 43-101 Florence Copper Project, Technical Report, Pre-Feasibility Study* is provided on CD as Exhibit S-2 of Attachment S. A complete Updated UIC Permit Application is provided as Appendix 1 of this response.

**Applicable to the July 2, 2013 FC Response to EPA Request for Information Letter dated June 12, 2013**

**Comment 31**

*Response to Comment 2: Please change Figure 3 to 2 in second paragraph, first sentence. There is no Figure 3.*

Response to Comment 31

The requested correction to the first sentence of the second paragraph of Response to Comment 2 has been noted and the correct Figure numbering is reflected in the revised Operations Plan included as Exhibit K-2 of Attachment K. A revised version of Attachment K is provided with the complete Updated UIC Permit Application included as Appendix 1 of this response.

**Comment 32**

*Appendix 3, Revised Operations Plan, page 2: Please add "and to USEPA in accordance with UIC Permit conditions" after in accordance with Aquifer Protection Permit (APP) requirements ending at the top of page 2.*

Response to Comment 32

The requested text has been added to the revised Operations Plan, page 2. The revised Operations Plan is included as Exhibit K-2 of Attachment K. A revised version of Attachment K is provided with the complete Updated UIC Permit Application included as Appendix 1 of this response.

**Comment 33**

*Appendix 3, Revised Operations Plan, Table 1: Please add a transducer to the Injection System, Injection Well Head line to measure annular pressure above the packer with columns to describe conditions, possible cause, response, and follow-up action.*

Response to Comment 33

Table 1 of the Operations Plan has been revised to include a transducer in the Injection System, Injection Well Head Line to measure annular pressure. Columns have been added to the table to describe conditions, possible cause, with response and follow up actions. The revised Table is provided in Exhibit K-2 of Attachment K of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

**Comment 34**

*Appendix 5, Alert Levels to Attachment P of the UIC Permit Application:*

- a) Section 1.3.1, page 3: first paragraph, first sentence: Please substitute "Arizona and USEPA-approved methods" for Arizona-approved methods and delete the second sentence.*
- b) Section 1.3.6, page 5: Please add "and Parts II.H.2 of the UIC Permit." After Section 2.6.2.4 of Temporary APP No. 106360 to the end of sentence 3.*
- c) Section 1.4: Please replace three years with "two years" in the last full sentence for EPA requirement for notice of operational status during periods of temporary cessation of operations.*
- d) Section 1.4: Please edit the last sentence to read "written notification of closure to USEPA and ADEQ in accordance with permit conditions."*

Response to Comment 34

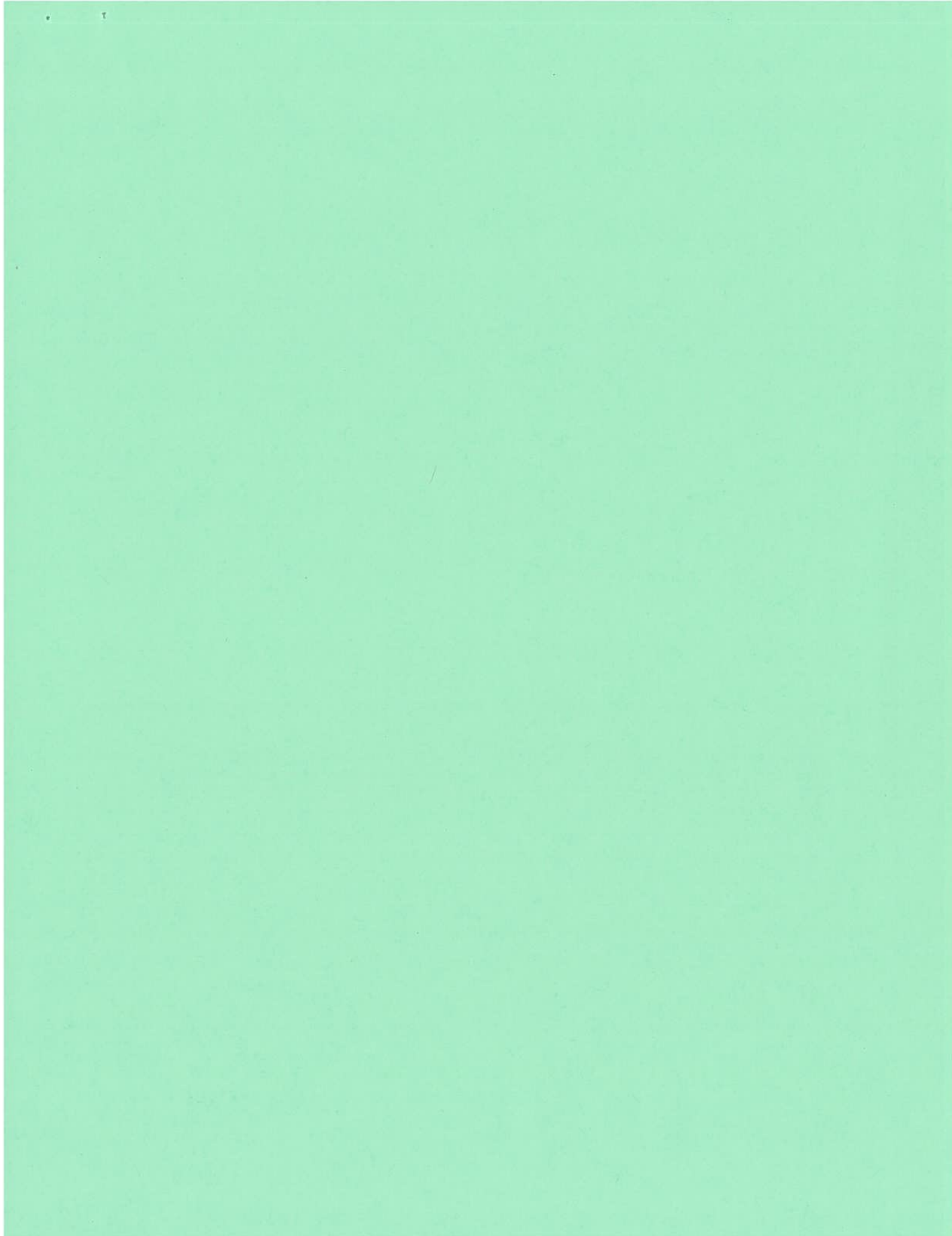
The requested text changes have been made to Exhibit P-1 of Attachment P of the Updated UIC Permit Application. A complete Updated UIC Permit Application is included as Appendix 1 of this response.

**Comment 35**

*Please add the July 2 letter attachments and/or appendices and subsequent submittals to EPA to the List of Documents applicable to the UIC Permit Application and Related Submittals dated May 3, 2013.*

Response to Comment 35

The July 2, 2013 response to RFI, and subsequent submittals, have been added to the List of Documents applicable to the UIC Permit Application and Related Submittals. The list of applicable documents and submittals is included in Appendix 3 of this response.



## **APPENDIX 1**

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**Complete Updated UIC Permit Application  
(Submitted Separately)**



## **APPENDIX 2**

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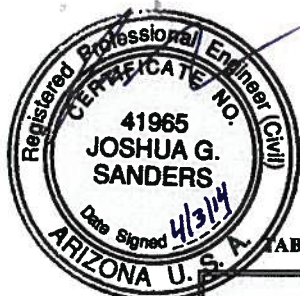
**Revised Cost Estimate Dated April 3, 2014**



FLORENCE COPPER, INC.  
APPLICATION FOR TEMPORARY INDIVIDUAL AQUIFER PROTECTION PERMIT  
ATTACHMENT 5 - EXPLANATION OF COST ESTIMATES (ITEM 17)

TABLE 5-2. (Revised 4/03/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
<b>SECTION 1. PTF WELL FIELD</b>					
<b>1. Groundwater Restoration</b>					
Restore groundwater to meet proposed permit criteria by rinsing IRZ and neutralizing/evaporating rinse solution. (Assumed 260 gpm well rinsing, 9 month period.) Well field includes 24 wells (4 injection wells, 9 recovery wells, 7 observation wells and 4 multi-level sampling wells).	1. Rinse wells. <sup>1</sup>	\$78,478	Lump Sum	1	\$78,478
	2. Operation and maintenance labor (for 9 month period plus 1 month closure period) <sup>2</sup>	\$641,328	Lump Sum	1	\$641,328
	3. Quicklime Neutralization <sup>3</sup>	\$0.07	lbs	1,614,330	\$113,003
	4. Evaporation during rinsing <sup>22</sup>	\$1.08	1,000 gallons	102,585	\$110,792
	5. Rinsing Contingency (6 month duration includes rinsing, neutralization, evaporation, operation and maintenance) <sup>18</sup>	\$617,279	Lump Sum	1	\$617,279
	6. Sampling Contingency (includes cost to perform sampling and analysis for items 8-10 below if additional rinsing is required)	\$91,465	Lump Sum	1	\$91,465
	7. Sampling and monitoring during rinsing. Level 1 analysis performed during 9 month rinsing period. (Assumed system is equipped with a manifold and will require 1 sampling location per event) <sup>5</sup>	\$683	Sampling Event	7	\$4,781
	8. Sampling and monitoring during rinsing. Level 2 analysis performed during 9 month rinsing period. (Assumed system is equipped with a manifold and will require 1 sampling location per event) <sup>6</sup>	\$1,663	Sampling Event	3	\$4,989
	9. Level 2 sampling and analysis. (To occur before hydraulic control suspension, includes sampling of 24 wells and 2 mine shafts) <sup>6</sup>	\$1,663	Well	26	\$43,238
	10. Level 2 sampling and analysis. (To occur after hydraulic control suspension, includes sampling of 24 wells and 2 mine shafts) <sup>6</sup>	\$1,663	Well	26	\$43,238
<b>Subtotal</b>					<b>\$1,748,591</b>
<b>2. Abandon PTF Test Wells</b>					
Abandon 24 PTF wells in accordance with Well Abandonment Plan. Well field includes 24 wells (4 injection wells, 9 recovery wells, 7 observation wells and 4 multi-level sampling wells). <sup>7</sup>	1. File NOIs with ADWR.	\$54	Well	24	\$1,296
	2. Remove electrical conduit, wellhead assemblies and control boxes.	\$375	Well	17	\$6,375
	3. Remove pumps.	\$375	Well	17	\$6,375
	4. Remove monuments and cement pads. Cut off casing 5 feet below land surface and backfill hole. (2 crew hours per well)	\$150	Crew Hours	48	\$7,200
	5. Dispose of liners, wood, and misc. pipe in off-site landfill (5 cy/well).	\$54	CY	120	\$6,480
	6. Type V Cement (\$240/CY, 0.017 cy/ft)	\$4.51	LF	28,440	\$128,264
	7. Tremie Type V cement from TD to 5 feet below land surface.	\$1.07	LF	28,440	\$30,431
	8. Crew and equipment (per diem, backhoe, 10T smel rig)	\$4,286	Well	24	\$102,864
	9. Mobilization/Demobilization	\$1,598	Lump Sum	1	\$1,598
	10. File Abandonment Completion Reports with ADWR.	\$33	Well	24	\$792
	11. Allowance for unexpected conditions.	\$214	Well	24	\$5,136
<b>Subtotal</b>					<b>\$296,811</b>
<b>PTF Test Wells Total</b>					<b>\$2,045,402</b>



FLORENCE COPPER, INC.  
APPLICATION FOR TEMPORARY INDIVIDUAL AQUIFER PROTECTION PERMIT  
ATTACHMENT 5 – EXPLANATION OF COST ESTIMATES (ITEM 17)

TABLE 5-2. (Revised 4/03/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

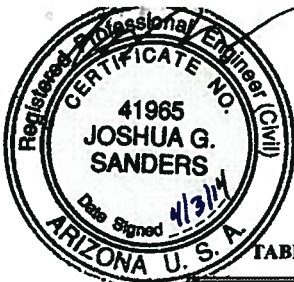
OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
<b>SECTION 2. WATER IMPOUNDMENT AND PIPELINE CORRIDOR</b>					
<b>1. Impoundment Removal</b>					
Includes evaporation/disposal of 9,725,300 gallons of liquid/sediment, removal/disposal of impoundment's liners and LCRS. Also includes removal of pipeline corridor and the backfilling and regrading of disturbed areas. Includes contingency and administrative costs.	1. Closure Cost Estimate by Knight Piesold and Co. May 9, 2012 CPI inflation adjusted to 2014. (RTC1.1) <sup>8</sup>	\$430,933	Lump Sum	1	\$430,933
	<b>Subtotal</b>				<b>\$430,933</b>
<b>2. Analysis of Soil Below Liner</b>					
Quantities assume impoundment and pipeline corridor is approximately 9 acres.	1. Prepare Sampling Plan. <sup>17</sup>	\$25,000	Lump Sum	1	\$25,000
	2. Contingency screening S&A if soil shows evidence of liner leak. (Assumed 5 sample locations per acre) <sup>10</sup>	\$710	Sample	45	\$31,950
	3. Expanded sampling for select analytes identified during screening. <sup>9</sup>	\$473	Sample	90	\$42,570
	4. Contingency sampling and analysis for unanticipated costs.	\$14,000	Lump Sum	1	\$14,000
	<b>Subtotal</b>				<b>\$113,520</b>
<b>Water Impoundment and Pipeline Corridor Total</b>					<b>\$544,453</b>
<b>SECTION 3. PROCESSING FACILITIES</b>					
<b>1. Tanks</b>					
Empty tanks of contents, rinse and decommission for re-use. Remove concrete containment/pads. Line item for tank rinse assumes rinse will be required in addition to the extended flow of rinse water from IRZ restoration.	1. Tank rinse and evaporation contingency. <sup>13</sup>	\$130	Crew Hour	24	\$3,120
	2. Relocate tanks off-site.	\$130	Crew hour	16	\$2,080
	3. Sample concrete. <sup>14</sup>	\$210	Sample	10	\$2,100
	4. Analyze concrete. <sup>14</sup>	\$410	Sample	10	\$4,100
	5. Demo and remove concrete liner.	\$7.75	SF	3,140	\$24,335
	6. Transport and disposal concrete at off-site landfill. <sup>11</sup>	\$64	Ton	458	\$29,312
	<b>Subtotal</b>				<b>\$65,047</b>
<b>2. Buildings</b>					
	1. Demolition/Removal of SX/EW Building. (Assumed metal construction) <sup>15</sup>	\$3.51	SF	11,000	\$38,610
	2. Sample concrete. <sup>14</sup>	\$210	Sample	10	\$2,100
	3. Analyze concrete. <sup>14</sup>	\$410	Sample	10	\$4,100
	4. Demolition/Removal of Concrete Pads, Foundation <sup>15</sup>	\$7.86	SF	5,500	\$43,230
	5. Removal of Modular Office	\$510	Each	2	\$1,020
	6. Removal of Septic Holding Tank	\$510	Each	1	\$510
<b>Subtotal</b>					<b>\$89,570</b>
<b>3. Soil Beneath Aboveground Storage Tanks and Buildings</b>					
Characterize and appropriately dispose, as necessary.	1. Contingency screening S&A if soil shows evidence of container leak. (Assumed 5 sample locations per acre) <sup>10</sup>	\$710	Sample	5	\$3,550
	2. Expanded sampling for select analytes identified during screening. <sup>9</sup>	\$473	Sample	10	\$4,730
	3. Contingency sampling and analysis for unanticipated costs.	\$14,000	Lump Sum	1	\$14,000
	<b>Subtotal</b>				<b>\$22,280</b>
<b>Processing Facilities Total</b>					<b>\$176,897</b>

TABLE 5-2. (Revised 4/03/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
<b>SECTION 4. RUN-OFF POND</b>					
<b>1. Liner and Earthwork</b>					
Remove and dispose of liner in properly licensed off-site solid waste landfill. Test and properly manage soil below liner. (Assumed to be non-hazardous)	1. Remove liner. <sup>12</sup>	\$0.05	SF	2,400	\$120
	2. Dispose of liner in off-site landfill. <sup>11</sup>	\$64	Ton	1	\$32
	3. Dispose of miscellaneous pipeline in off-site landfill. <sup>11</sup>	\$64	Ton	1	\$64
	4. Fill, compact, and recontour to near original contours (assumes berm material to be used as fill). <sup>4</sup>	\$3	CY	245	\$750
	5. Contingency screening S&A if soil shows evidence of liner leak. (Assumed 5 sample locations per acre) <sup>10</sup>	\$710	Sample	5	\$3,550
	6. Expanded sampling for select analytes identified during screening. <sup>9</sup>	\$473	Sample	10	\$4,730
	7. Contingency sampling and analysis for unanticipated costs.	\$14,000	Lump Sum	1	\$14,000
<b>Subtotal</b>					<b>\$23,246</b>
<b>Run-off Pond Total</b>					<b>\$23,246</b>
<b>SECTION 5. MISCELLANEOUS COSTS</b>					
<b>1. Daily Monitoring and Observations</b>					
Perform facility inspections and monitoring required by permit.	Included in Operation and Maintenance Labor, Section 1.				\$0
<b>2. Quarterly Well Monitoring</b>					
Perform quarterly monitoring of 14 POC wells during closure.	Monitoring includes 3 Level 1 events and 1 Level 2 event. <sup>21</sup>	\$72,265	Lump sum	1	\$72,265
<b>Total Miscellaneous Costs</b>					<b>\$72,265</b>
<b>Closure Cost Subtotal</b>					<b>\$2,862,263</b>
<b>Contingency (15%)(does not include item 2.1)</b>					<b>\$364,699</b>
<b>Administrative and Miscellaneous Expenses (10%)<sup>16</sup> (does not include item 2.1)</b>					<b>\$243,133</b>
<b>Closure Cost Total</b>					<b>\$3,470,095</b>



Expires: 3/31/17



FLORENCE COPPER, INC.  
APPLICATION FOR TEMPORARY INDIVIDUAL AQUIFER PROTECTION PERMIT  
ATTACHMENT 5 – EXPLANATION OF COST ESTIMATES (ITEM 17)

TABLE 5-2. (Revised 4/03/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
<b>SECTION 6. POST-CLOSURE MONITORING</b>					
<b>1. Initial monitoring</b>					
Initial monitoring period to last 5 years. <sup>21</sup>	1. Level 2 event (1 per year for 5 year period, cost is for 14 wells).	\$21,204	Event	5	\$106,020
	2. Level 1 events (3 per year for 5 year period, cost is for 14 wells).	\$8,654	Event	15	\$129,810
	<b>Subtotal</b>				<b>\$235,830</b>
<b>2. Maintenance</b>					
	Maintenance of pumps and wells. Perform visual inspection of surface facilities. (cost is for 14 wells)	\$4,284	Event	5	\$21,420
<b>3. Post Closure Summary Report</b>					
	Preparation of Summary Report to include PTF findings and post-closure groundwater modeling. <sup>20</sup> (cost is for 14 wells)	\$35,636	Lump Sum	1	\$35,636
<b>4. AQL Exceedance Contingency Per UIC Permit (Part ILH.2.b)</b>					
	1. Notify director and collect verification sample.	\$2,544	Event	1	\$2,544
	2. Notify director of verification results.	\$424	Event	1	\$424
	3. If verification sample indicates exceedance, submit report to ADEQ and USEPA.	\$8,480	Event	1	\$8,480
	<b>Subtotal</b>				<b>\$11,448</b>
<b>Post-Closure Monitoring Total</b>					<b>\$304,334</b>
<b>SECTION 7. POC &amp; SUPPLEMENTAL MONITORING WELLS</b>					
<b>1. Abandon PTF POC &amp; Supplemental Monitoring Wells<sup>23</sup></b>					
Abandon 7 POC wells and 7 supplemental monitoring wells in accordance with Well Abandonment Plan. <sup>7</sup> The 14 wells include: M14, M15, M22, M23, M52, M54-LBF, M54-O, M55-UBF, M56-LBF, M57-O, M58-O, M59-O, M60-O, M61-LBF.	1. File NOIs with ADWR.	\$54	Well	14	\$756
	2. Remove electrical conduit, wellhead assemblies and control boxes.	\$375	Well	14	\$5,250
	3. Remove pumps.	\$375	Well	7	\$2,625
	4. Remove monuments and cement pads. Cut off casing 5 feet below land surface and backfill hole. (2 crew hours per well)	\$150	Crew Hours	28	\$4,200
	5. Dispose of liners, wood, and misc. pipe in off-site landfill (5 cy/well).	\$54	CY	70	\$3,780
	6. Type V Cement (\$240/CY, 0.017 cy/ft)	\$4.51	LF	11,640	\$52,496
	7. Tremie Type V cement from TD to 5 feet below land surface.	\$1.07	LF	11,640	\$12,455
	8. Crew and equipment (per diem, backhoe, 10T smel rig)	\$4,286	Well	14	\$60,004
	9. Mobilization/Demobilization	\$1,598	Lump Sum	1	\$1,598
	10. File Abandonment Completion Reports with ADWR.	\$33	Well	14	\$462
	11. Allowance for unexpected conditions.	\$214	Well	14	\$2,996
	<b>Subtotal</b>				<b>\$146,622</b>
<b>Post Closure Cost Subtotal</b>					<b>\$450,956</b>
<b>Contingency (15%)</b>					<b>\$67,643</b>
<b>Administrative and Miscellaneous Expenses (10%)<sup>16</sup></b>					<b>\$45,096</b>
<b>POST-CLOSURE TOTAL</b>					<b>\$563,695</b>
<b>TOTAL CLOSURE AND POST-CLOSURE COST</b>					<b>\$4,033,791</b>



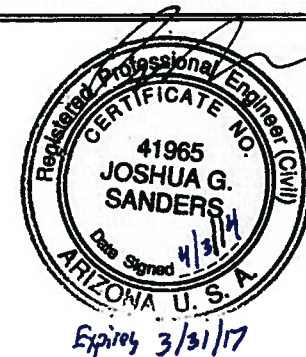
TABLE 5.2 (Revised 4/3/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

Footnote	Unit Cost Description
1	Well rinsing unit costs assume 4 injection wells and 9 recovery wells, 260gpm for 9 months (102,585,600 gallons). Pumps will use 13 - 15 hp motors @ 11.19kw, \$0.08/kwh, = \$0.75/1,000 gallons. Assumed on-site water source is provided. 2012 cost of \$76,939 CPI inflation adjusted to 2014 is \$78,478.
2	Operation and maintenance labor crew assumes 3 day laborers \$43.10/hr, 8 hours per day and 1 night laborer \$43.10/hr, 16 hours a day, \$1,724/day; assumes 10 month period = \$517,200. Unit cost source is 2004 RS Means, CPI inflation adjustment to 2014 is 1.24. 2014 cost is \$641,328.
3	Quicklime Neutralization assumes 5,979 lbs/day or 1,614,300 lbs for 9 months of rinsing, \$135/ton or \$0.06/lb lime unit cost. Source is M3 report exhibit 9C. 2012 to 2014 CPI inflation adjustment cost is \$138/ton or \$0.07/lb.
4	Backfill unit cost - per contractor estimate, includes equipment and operator cost. CPI inflation adjusted to 2014. Assumes backfill material import is not required. Reseeding of disturbed area is included in reclamation plan.
5	Level 1 sampling & analysis unit costs include sampling, lab analysis, and reporting. Costs based on recent similar projects. Lab analysis costs are \$59 per sample. CPI inflation adjustment to 2014.
6	Level 2 sampling & analysis unit costs include sampling, lab analysis, and reporting. Costs based on recent similar projects. Lab analysis costs are \$910 per sample. CPI inflation adjustment to 2014.
7	Well abandonment unit costs derived from average cost of 4 contractor bids received in May 2010. CPI inflation adjustment to 2014.
8	Cost estimate for closure of the water impoundment and pipeline channel is provided by Knight Piesold and Co. "Curis Resources (Arizona) Inc. Florence Copper Project PTF Process Solution Impoundment & Pipeline Channel Closure Cost Estimate" May 9, 2012 and is included in RTC1.1. 2012 cost of \$422,483 with CPI adjustment to 2014 is \$430,933.
9	Expanded sampling for selected analytes identified during screening analysis. Assumes 2/3 amount of analytes and includes twice the amount of samples.
10	Sampling and Analysis (S&A): Initial S&A will be performed to characterize soil potentially affected by spills and leaks. Follow-up S&A may be required in order to determine the extent of contamination or effectiveness of remediation efforts. The 2014 estimated S&A cost of \$710 per sample is based on the following: sampling cost of \$133 (2001 estimate of \$100 adjusted by 2014 CPI inflation factor of 1.33); analytical cost of \$570 for 13 priority pollutants including Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Se, Tl, Zn, pH, VOC's, SVOC's, SPLP, Acid-Base Accounting as reflected in laboratory quote; and rounding the total cost of \$703 to \$710. Unit costs based on laboratory quote.
11	Disposal of non-hazardous waste - includes loading, transport, and disposal; unit cost source is 2010 contractor bid for similar project. CPI adjusted for 2014.
12	Liner Removal - unit cost per contractor estimate 2010, CPI inflation adjusted to 2014.
13	It is assumed all pipelines and tanks will be flushed clean during the groundwater restoration phase.
14	Sample and analyze concrete - sample unit costs assume not to exceed \$200 per sample, analytical cost assume \$150 for sample preparation, \$210 for analysis, and \$40 for misc. costs. Sampling cost is \$200, analysis cost is \$400. CPI inflation adjusted to 2014 is \$210 for sampling and \$410 for analysis.
15	Unit cost source is Racer cost estimate software version 8.1.2. CPI inflation adjusted to 2014.
16	Administrative support and expenses includes utilities and communications cost, miscellaneous equipment and site maintenance, and site management during closure. The closure cost estimate by Knight Piesold, Section 2.1 includes administrative and contingency costs. Therefore, Section 2.1 is not included in the contingency and administrative cost calculations reflected in Section 5.
17	Sampling plan to describe collection, preparation, and analysis of parameters described in note 10.
18	Rinsing contingency assumes an additional 6 month duration of rinsing and operation and maintenance costs in the event that additional rinsing is required beyond the initial 9 month period. Includes rinsing, neutralization, evaporation, maintenance and operation costs.
19	not used
20	Preparation of Summary Report assumes 1 person at \$175/hr for 1 month, \$28,000. Post closure ground water modeling assumes 2 people at \$175/hr for 3 months, \$56,000. Total for summary report is \$84,000 for 33 POC wells. Report cost for 14 wells is assumed to be 14/33 of that total.
21	Post Closure Monitoring Total includes estimated cost for monitoring the 7 PTF POC wells and 7 supplemental monitoring wells. The 14 wells include M14, M15, M22, M23, M52, M54-LBF, M54-O, M55-UBF, M56-LBF, M57-O, M58-O, M59-O, M60-O, M61-LBF. The total post closure monitoring cost estimate for the FCP is based on 33 POC wells with a total estimated cost of \$555,900. A breakdown of the monitoring costs is included as page 6 of this document. Cost for the monitoring of 14 wells was determined by taking 14/33 of that total.
22	Evaporation cost assumes mechanical evaporation rate is 2,250 gallons/hr and \$1.06 per 1,000 gallons. Based on Landshark evaporation unit and electric cost of \$0.08/kwh. 2012 to 2014 CPI inflation adjusted cost is \$1.08/1,000 gallons.
23	Financial assurance for the closure of all POC wells except M54-LBF and M54-O is provided under existing permit.
Note:	Estimated quantities for proposed facilities are based on design plans by Knight Piesold Consulting and M3 Engineering prepared May 2012. Source for existing well data is Arizona Department of Water Resources (ADWR).

FLORENCE COPPER, INC.  
APPLICATION FOR TEMPORARY INDIVIDUAL AQUIFER PROTECTION PERMIT  
ATTACHMENT 5 – EXPLANATION OF COST ESTIMATES (ITEM17)

**SUPPLEMENT TO TABLE 5-2. (Revised 4/03/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES  
COST EXPLANATION FOR MONITORING**

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
<b>SECTION 6. POST-CLOSURE MONITORING</b>					
<b>1. Initial monitoring</b>					
Initial monitoring period to last 5 years.	1. Level 2 event (annual, 1 per year for 5 year period).				
	Field Activities	\$8,000	Event		
	Analysis and Reporting	\$9,000	Event		
	Laboratory Fee	\$32,000	Event		
	Subtotal (Includes 2012 to 2014 CPI adjustment of 1.02)	\$49,980	Event	5	\$249,900
	2. Level 1 events (quarterly, 3 per year for 5 year period).				
	Field Activities	\$8,000	Event		
	Analysis and Reporting	\$8,000	Event		
	Laboratory Fee	\$2,000	Event		
	Contingency	\$2,000	Event		
	Subtotal (Includes 2012 to 2014 CPI adjustment of 1.02)	\$20,400	Event	15	\$306,000
	<b>Total for 33 POC Wells</b>				<b>\$555,900</b>
<b>Footnote</b>	<b>Unit Cost Description</b>				
1	Level 2 event consists of sampling 33 wells for depth to water and collecting sample. Sample events take approximately 7 days and can be performed by one field technician. Additional time is included for expanded data processing and evaluation. Laboratory cost for a level 2 sample is approximately \$890 per sample for 33 regular samples and 3 duplicate samples, for total laboratory cost of \$32,000. Fee includes approximately \$1,500 in supplies and expenses.				
2	Level 1 event consists of sampling 33 wells for depth to water and collecting sample. Sample events take approximately 7 days and can be performed by one field technician. Level 1 analysis consists of Mg, F, SO <sub>4</sub> , and TDS. Laboratory cost for a level 1 sample is approximately \$55 per sample for 33 regular samples and 3 duplicate samples, for total laboratory cost of \$2,000. Fee includes approximately \$1,500 in supplies and expenses.				



the 1980s, the number of people in the United States who are aged 65 and older has increased from 15.5 million to 25.5 million, and the number of people aged 75 and older has increased from 6.5 million to 10.5 million (U.S. Census Bureau, 1989).

As the number of people aged 65 and older increases, the number of people aged 75 and older increases at a faster rate. The number of people aged 75 and older is projected to increase from 10.5 million in 1989 to 15.5 million in 2000, an increase of 48% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 15.5 million in 1989 to 25.5 million in 2000, an increase of 64% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 25.5 million in 1989 to 35.5 million in 2000, an increase of 39% (U.S. Census Bureau, 1989).

The number of people aged 75 and older is projected to increase from 35.5 million in 1989 to 45.5 million in 2000, an increase of 28% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 45.5 million in 1989 to 55.5 million in 2000, an increase of 22% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 55.5 million in 1989 to 65.5 million in 2000, an increase of 18% (U.S. Census Bureau, 1989).

The number of people aged 75 and older is projected to increase from 65.5 million in 1989 to 75.5 million in 2000, an increase of 15% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 75.5 million in 1989 to 85.5 million in 2000, an increase of 13% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 85.5 million in 1989 to 95.5 million in 2000, an increase of 11% (U.S. Census Bureau, 1989).

The number of people aged 75 and older is projected to increase from 95.5 million in 1989 to 105.5 million in 2000, an increase of 10% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 105.5 million in 1989 to 115.5 million in 2000, an increase of 9% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 115.5 million in 1989 to 125.5 million in 2000, an increase of 8% (U.S. Census Bureau, 1989).

The number of people aged 75 and older is projected to increase from 125.5 million in 1989 to 135.5 million in 2000, an increase of 8% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 135.5 million in 1989 to 145.5 million in 2000, an increase of 7% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 145.5 million in 1989 to 155.5 million in 2000, an increase of 7% (U.S. Census Bureau, 1989).

The number of people aged 75 and older is projected to increase from 155.5 million in 1989 to 165.5 million in 2000, an increase of 6% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 165.5 million in 1989 to 175.5 million in 2000, an increase of 6% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 175.5 million in 1989 to 185.5 million in 2000, an increase of 6% (U.S. Census Bureau, 1989).

The number of people aged 75 and older is projected to increase from 185.5 million in 1989 to 195.5 million in 2000, an increase of 5% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 195.5 million in 1989 to 205.5 million in 2000, an increase of 5% (U.S. Census Bureau, 1989). The number of people aged 75 and older is projected to increase from 205.5 million in 1989 to 215.5 million in 2000, an increase of 5% (U.S. Census Bureau, 1989).

### **APPENDIX 3**

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#### **List of Documents applicable to the UIC Permit Application and Related Submittals**

**UIC PERMIT APPLICATION AND RELATED SUBMITTALS**  
**May 2014**

**LIST OF DOCUMENTS**

- Item 1: March 2011 – Application to Amend Underground Injection Control Permit No. AZ396000001, Volume 1 of 2, Attachments A through F
- Item 2: March 2011 – Application to Amend Underground Injection Control Permit No. AZ396000001, Volume 2 of 2, Attachments H through U
- Item 3: July 25, 2011 – Letter to Nancy Rumrill, EPA, Re: Supplemental Data and Information in Support of Curis Resources (Arizona) Inc. Application to Amend Underground Injection Control Permit (UIC No. AZ396000001)
- Attachments: Borehole Packer Test Records  
Class III Well Cement Records  
Example Forms 7520-14
- Item 4: August 18, 2011 – Letter to Nancy Rumrill, EPA, Re: Supplemental Data and Information Regarding the Groundwater Model Prepared in Support of Curis Resources (Arizona) Inc. Application to Amend Underground Injection Control Permit (UIC No. AZ396000001)
- Attachments: *DRAFT Analytical Interpretation of Hydraulic Tests at the Florence Mine Site for Magma Copper Company Florence In-Situ Leaching Project*, prepared by Golder Associates, Inc. dated February 1996  
Oxide Bedrock Unit Aquifer Test Results Database
- Item 5: March 30, 2012 – Letter to Nancy Rumrill, EPA, Re: Response to Request for Information dated January 30, 2012 Class III Underground Injection Control Permit Application, Curis Resources (Arizona) Inc.
- Appendix A: Revised Attachment Q – Plugging and Abandonment Plan (in letter)  
Appendix B: Modeling Files
- Item 6: April 19, 2012 – Submittal of Cultural Resource Full Size Figures, Curis Resources (Arizona) Inc.
- Attachments: Figure 1 – Phase I Map  
Figure 2 – Proposed Facility Layout  
Figure 3 – Phase II Map  
Figure 4 – Core Hole Map

UIC PERMIT APPLICATION AND RELATED SUBMITTALS

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Item 7: June 1, 2012 – Letter to Nancy Rumrill, EPA, Re: Application for Modification and Transfer of Underground Injection Control Permit No. AZ396000001 from Florence Copper, Inc. to Curis Resources (Arizona) Inc.

Attachment 1: Table of Contents with Notes Referencing Phase I (part of letter)

Attachment 2: Figure 7-2, Attachment 7 of the March 2012 Temporary APP Application

Attachment 3: Figures 14A-8, 14A-9, 14C-48, 14C-49, 14C-50, 14C-51, and 14C-52 of the March 2012 Temporary APP Application

Attachment 4: Exhibit 10-C, Attachment 10 of the March 2012 Temporary APP Application

Attachment 5: Updated Response to Comment 15 of the USEPA January 30, 2012 Request for Information (Plan of Operation and Table 1)

Attachment 6: Exhibit 9A of the March 12, 2012 Temporary APP Application

Item 8: September 10, 2012 – Letter to Nancy Rumrill, EPA, Re: Response to Request for Information dated July 20, 2012, Class III Underground Injection Control (UIC) Well Permit Application, Curis Resources (Arizona) Inc.

Tables: Table 3-1: Wells and Core Holes within 500 Feet of the PTF Well Field

Figures: Figure 2-1: Model Predicted Migration of Lixiviant – Scenario 1 (30 days without hydraulic control)

Figure 2-2: Model Predicted Migration of Lixiviant – Scenario 1 (48 hours without hydraulic control)

Figure 2-3: Model Predicted Migration of Lixiviant – Scenario 2

Figure 2-4: Model Predicted Migration of Lixiviant – Scenario 3

Figure 2-5: Model Predicted Migration of Lixiviant – Scenario 4

Figure 2-6: Model Predicted Migration of Lixiviant – Scenario 5

Figure 2-7: Model Predicted Migration of Lixiviant – Scenario 6

Figure 2-8: Model Predicted Migration of Lixiviant – Scenario 7

Figure 9-1: Model Predicted Migration of Lixiviant – Scenario 8 (West-facing Cross Section)

Figure 9-2: Model Predicted Migration of Lixiviant – Scenario 8 (North-facing Cross Section)

Figure 18-1: Proposed POC and Supplemental Monitor Well Locations

Figure 18-2: POC Well Design - M55-UBF

Figure 18-3: POC Well Design - M56-LBF

Appendix A: Original Well And Core Hole Records

Appendix B: Revised Phase 1 PTF Operations Plan

Appendix C: Revised Temporary APP Figure 9A-1, Typical Injection/Recovery Well Construction Diagram

Appendix D: Temporary APP Attachment 9 – Design Documents (Item 25.c)

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- Appendix E: Temporary APP Figure 8-1 – Site Plan
- Appendix F: Proposed Revised Design of One New Point of Compliance Well (M54-LBF/O), Submitted to ADEQ August 27, 2012
- Appendix G: EPA Forms 7520-14, Plugging and Abandonment Plans
- Appendix H: Revised Temporary APP Table 5.2, PTF Closure and Post-Closure Cost Estimates

Item 9: December 14, 2012 – Response to Request for Information dated November 8, 2012, Class III Underground Injection Control (UIC) Well Permit Application, Curis Resources (Arizona) Inc.

- Attachment 1: Revised Figure APP RTC(E) 18-1: Wells and Core Holes within 500 feet of PTF  
Revised Figure 8-1: Site Plan  
Revised Figure 9-1: Model-Predicted Migration of Lixiviant – Scenario 8 (West-Facing Cross Section)  
Revised Figure 9-2: Model-Predicted Migration of Lixiviant – Scenario 8 (North-Facing Cross Section)  
Revised Figure 12-1: Existing and Proposed Point of Compliance Wells
- Attachment 2: Revised North-South Cross Sections and East-West Cross Sections
- Attachment 3: Revised Operations Plan
- Attachment 4: Figure 11-1: Monitor Well Locations, Proposed Test Facility;  
Figure 11-2: Supplemental Monitoring Well M61-LBF Design
- Attachment 5: Figure 12-1: Supplemental Monitoring Well M57-O Design  
Figure 12-2: Supplemental Monitoring Well M58-O Design  
Figure 12-3: Supplemental Monitoring Well M59-O Design  
Figure 12-4: Supplemental Monitoring Well M60-O Design

Item 10: March 4, 2013 – Response to Request for Information dated February 27, 2013, Class III Underground Injection Control (UIC) Well Permit Application, Curis Resources (Arizona) Inc.

- Attachment 1: Revised Operations Plan
- Attachment 2: Revised Figure 11-1, Monitor Well Location (Revised), Proposed Test Facility
- Attachment 3: Revised Figure 11-2, Supplemental Monitoring Well M61-LBF Design

Item 11: July 2 2013 - Response to Request for Information dated June 12, 2013, Class III Underground Injection Control (UIC) Well Permit Application, Curis Resources (Arizona) Inc.

- Appendix 1: Revised Corrective Action Plan
- Appendix 2: Revised Plugging and Abandonment Plan
- Appendix 3: Revised Operations Plan and Related Tables and Figures

UIC PERMIT APPLICATION AND RELATED SUBMITTALS  
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- Appendix 4: Revised Drawings M-1 and M-2
- Appendix 5: New Exhibit A – Alert Levels to Attachment P of UIC Permit Application
- Appendix 6: Revised Maps  
March 2012 Temp APP Application: Figure 12-1  
December 14, 2012 Response: Figure Temp APP RTC(E) 18-1 and Figure 8-1
- Appendix 7: Electronic Files for UIC Permit Application (Provided on CD)
- Appendix 8: Revised Cross Sections